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APHCRI STREAM 13: OPTIMIZING ACCESS TO BEST PRACTICE PRIMARY HEALTH CARE: A SYSTEMATIC REVIEW

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PREFACE

This is the final report of a systematic review conducted as part of the Australian Primary Health Care Research Institute (APHCRI) Stream Thirteen funding. The aim of Stream Thirteen was to systematically identify, review, and synthesise knowledge about the drivers of successful primary health care service delivery in Australia and develop practical policy options fit for use in the Australian context.

THE RESEARCH TEAM

This review was undertaken by the Centre for Primary Health Care and Equity (CPHCE), School of Public Health and Community Medicine, University of New South Wales (UNSW) in association with The Centre for Health Economics Research and Evaluation (CHERE), University of Technology Sydney, The University of Melbourne and Victoria University of Wellington. The researchers involved included: A/Prof Elizabeth Comino (CPHCE), Prof Mark Harris (CPHCE), A/Prof Marion Haas (CHERE), Dr John Furler (University of Melbourne), A/Prof Gawaine Powell Davies (CPHCE), Dr Antony Raymont (University of Wellington), Prof Jane Hall (CHERE), Dr Yordanka Krastev (CPHCE), Ms Bettina Christl (CPHCE), and Dr Nighat Faruqi (CPHCE).

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LIST OF ABBREVIATIONS

ABS – Australian Bureau of Statistics

ANU – Australian National University

APHCRI – Australian Primary Health Care Research Institute

AHW – Aboriginal health worker

AIHW – Australian Institute for Health and Welfare

BA – Before and after

CALD – Culturally and linguistically diverse

CBA – Controlled before and after

CCT – Controlled clinical trial

CDM – Chronic disease management

CHERE – Centre for Health Economics Research and Evaluation, University of Technology Sydney

CHW – Community health worker

CINAHL – Cumulative Index to Nursing and Allied Health Literature

CPHCE - Centre for Primary Health Care and Equity

DARE – Database of Abstracts of Reviews of Evidence

EPC – Enhance Primary Care

EPOC – Effective Practice and Organisation of Care

GP – General practitioner

HMO – Health Management Organisation

ITS – Interrupted time series

NHS – National Health Service UK

PAP test – Papanicolaou test

PHC – Primary health care

PHCO – Primary health care organization

PIP – practice incentive payment

RCT – Randomised controlled trial

SIP - Service incentive payment

UNSW – University of New South Wales

WHO – World Health Organisation

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1. BACKGROUND AND RATIONALE

'Ensuring that everybody can get access to effective and high quality health service is one of our most important priorities'(1).

1.1 INTRODUCTION

This document reports on a systematic review examining evidence about policy and practice interventions designed to influence access to 'best practice' primary health care (PHC). The review focused specifically on those interventions that were of relevance to the Australian PHC system.

Ensuring that Australians have access to best practice PHC is an integral component of Australian health care policy. Although Australia has had a universal health care system under Medicare since 1984, the health system is still fragmented through multiple funding and structural mechanisms and the exclusion of many PHC services from Medicare funding. Consequently there is unequal access to health care services driven by factors such as out of pocket costs, availability of PHC, and distribution of services. Growing awareness of the importance of a strong PHC sector in delivering equitable and cost-effective health care is creating interest in ways to better understand and address access to PHC and ensure that all Australians have access to appropriate PHC.

1.2 DEFINITIONS

For the purpose of this review we conceptualised access as the 'balance between health service need (patient side) and health service use (provider side)'. This definition of access enabled us to identify research involving interventions to address access to best practice PHC in populations as well as for individual patients. It highlighted the dynamic nature of access(2). Interventions that impacted on access would result in measurable changes in use of PHC. In addition access was constructed as a two sided concept; change in access would be associated with factors that affect either patients or providers (Figure 1). The definition built on those used by previous authors (3-5). For example, Penchansky and Thomas (1981) defined access as the 'degree of fit' between users and providers of health services (5).

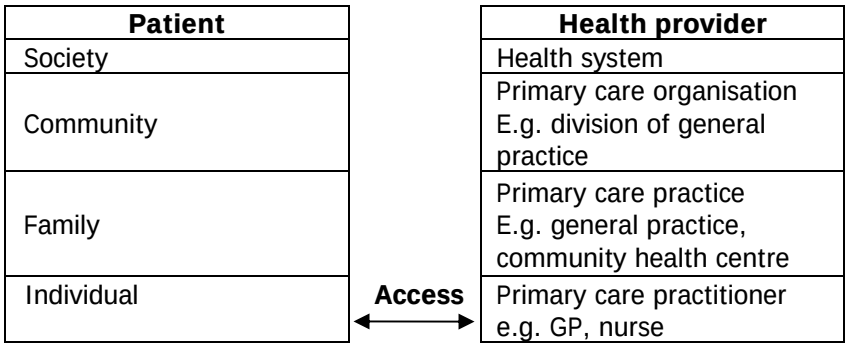
While we acknowledge the variability of individual need, we defined health service need in terms of best practice processes of PHC. PHC was defined as first contact, community based health care services, largely but not exclusively based in general practice (6). We selected three important domains of PHC (episodic care, prevention, and chronic disease management) and chose specific examples of these areas where there is agreement, based on research evidence, clinical and expert opinion and consensus, about what constitutes best practice: advanced access and after hours care, (Papanicolaou (PAP) testing) for cervical cancer screening, and diabetes care (7-10). These represent conditions or elements of service provision that are broadly relevant in the community and are specific to PHC. Thus for people with diabetes best practice care was defined in terms of recommended care processes and their access to PHC measured by the proportion who receive them.

Our definition includes both patient- and provider-side issues that influence whether a patient is able to and chooses to access health care. Access to PHC is influenced by factors at many different levels, from the health system as a whole to the individual service provider, and from society wide factors through to individual patient characteristics. We used an ecological model to highlight the interaction between these levels and how they impact on access (11) (Figure 1). Factors that influence access to best practice PHC can operate at all levels. How and why factors influence as these different levels will be explored in this review.

The dimensions of access have been described in different ways. One schema that has been widely used considers service availability, accessibility, accommodation, affordability, and acceptability (5). We adopted a schema based on aspects of the health system and groupings

of factors that influence access to best practice PHC, categorised as financial, geographic, workforce, practice environment, and personal factors (4).

Figure 1: Conceptual framework of access to 'best practice' PHC



This review will focus specifically on the PHC sector (6, 12, 13) which we have taken to include first contact community based health services including general practitioners (GPs), nurses, pharmacists, and allied health professionals.

1.3 ACCESS TO PHC IN AUSTRALIA

Universal access to affordable health care is a fundamental principle underlying the Australian health care system. This system is based on a publicly-funded universal insurance scheme, Medicare, which was introduced across Australia in October 1984 (14). Medicare provides free or subsidised access at the point of care to most primary medical services (usually out of hospital services, including general practice). It also provides limited access to some nursing and allied health services including optometry, and access to diagnostic services and subsidised prescription pharmaceuticals. This provides the basis for universal access to PHC where those services exist.

However access to Medicare funded services is not as universal or equal as one might expect. PHC policy impacts on the structure of PHC in Australia, contributes to fragmentation of services and offers few incentives to encourage development of comprehensive PHC through integration or co-location of services and development of multidisciplinary PHC teams. There are inherent financial barriers to PHC due to limited coverage beyond medical services under Medicare, and few incentives to develop new approaches to delivery of PHC. GPs who elect to bulk-bill Medicare for some or all of their patients are remunerated for services according to a Schedule of fees determined by Medicare (15). Where GPs elect not to bulk-bill, patients incur an additional co-payment for medical care (15). There is substantial variability in the distribution of bulk billing (16).

Recent policy and funding changes have extended Medicare coverage to other community based health professionals, including nurses and allied health professionals, to provide a restricted range of services to patients who meet certain criteria (14). General funding for these services is distributed through the state based hospital system, or is derived from fee for service payments charged to patients by health professionals in private practice. Patients who are unable to afford additional services may have limited access to these services despite evidence of their benefits.

There are also distributional issues for PHC as Medicare policy has limited capacity to determine where health care providers practice. Compared to people in urban regions, people who live in rural and remote areas are relatively underserved in terms of local availability of services, and are more likely to incur personal costs in getting to PHC and other health services (16-18). However, there are also distributional issues within urban areas depending on where people live and on social and cultural factors. Generally fewer GPs work in disadvantaged areas; practitioners in these region provide more consultations, but fewer long consultations and a more limited range of services than do GPs working in more advantaged areas (19-22). These GPs may also have less capacity to implement best practice PHC due to conflicting demands of

patient load, and opportunities to share care through involvement of nurses and other health professionals in care who may also be in short supply (21, 23).

Consequently fee for service arrangements favour patients who are able to seek out and pay for services that they require, and will disadvantage vulnerable patients who may require different types of care provision including outreach and multidisciplinary care. Consequently PHC in Australia may not be well placed to address emerging health care needs of Australians and address growing differentials in access to many aspects of PHC.

1.4 WHY ACCESS TO PHC IS IMPORTANT/RELEVANCE

There is evidence that a strong PHC sector is essential to the health and welfare of populations (13), and that a strong PHC sector is associated with better population health, reduced costs of health care provision, and greater efficiency within the system (24). There is also evidence for the effectiveness of best practice PHC in a number of areas of PHC, including chronic disease management, prevention, and screening (7-10, 25).

Since 2007, the Australian Government has established a number of reviews of the health system, most importantly the Health and Hospitals Reform Commission(1) and the National Preventive Health Taskforce (26), and developed a Primary Health Care Strategy (27), all of which have recently released reports. The key features of the recommendations of these reviews are a strengthening of PHC, through the development of facilities which provide multidisciplinary care and extended hours, enrolment of people with chronic conditions and young families with 'health care homes', and better integration with aged care and non-acute community services. Proposed funding changes would move all PHC funding responsibilities to the Australian government, and encourage the development of alternatives to fee-for-service. The Health and Hospitals Reform Commission has proposed immediate changes to the Commonwealth-State funding agreements to an activity based funding model, with clear performance targets (1).

State governments are interested in better understanding the role of PHC with a realisation that there are potential population health gains and cost advantages in ensuring that people have access to good quality, timely, and effective PHC. New programs such as HealthOne in NSW are aimed at enhancing integration of primary and community health services through bringing together GPs and community health and other health professionals into multidisciplinary teams (28, 29). These services specifically aim to improve service access and health outcomes for disadvantaged and vulnerable groups.

1.5 RESEARCH AIMS AND RESEARCH QUESTIONS

This systematic review will examine evidence from the literature regarding access to 'best practice' primary health care (PHC) with a focus on interventions that are relevant to the Australian PHC system.

The review questions are:

1. What factors (barriers and facilitators) are associated with differences in access to 'best practice' PHC?
2. What interventions aimed at improving access to 'best practice' PHC have been tested?
3. How effective are these interventions in enhancing access to 'best practice' PHC and reducing differences in access across population groups?
4. What is known about the cost and benefits of these interventions?
5. What are the implications for policies and strategies in the Australian context?

The review is limited to three areas of PHC: episodic care, prevention (cervical cancer screening) and chronic disease care (diabetes). Where possible, information is presented about priority groups relating to vulnerability, culture, ethnicity, and age. Integral to this review is concern about ensuring equitable distribution of health care across population groups.

2. METHODS FOR REVIEW

The research questions, scope and inclusion and exclusion criteria used in this review were refined in consultation with the research team, a project reference group and other interested key informants.

2.1 SCOPE OF THE REVIEW

The review examines Australian and international evidence on access to best practice primary health care. This includes evidence around barriers and facilitators to access as well as interventions and evaluations to enhance access to best practice PHC.

To illustrate a broad range of activities that occur in PHC, the review examines chronic, preventive and episodic care, with a focus on diabetes prevention and management, screening for cervical cancer PAP testing and access to timely care, after-hours care and continuity of care.

Diabetes and cervical cancer screening were selected, because both conditions have a high prevalence in the community, are largely managed in PHC setting and have clear, agreed, widely disseminated and accepted guidelines for their management or prevention in place (7-11). Episodic care was selected as it reflects the most common way of using primary health care.

2.2 SEARCH STRATEGY

The literature was identified through several sources:

- 'Black' literature (primary research) search of peer reviewed literature using bibliographic databases
- 'Grey' literature (published but not necessarily peer-reviewed)
- Snowballing of references of relevant 'black' and 'grey' literature
- Consultation with key stakeholders

'Black' literature

Primary research papers (black) were identified by searching Medline, EMBASE, CINAHL, COCHRANE/DARE & Epoc, PubMed, APAIS Health (via Informit – e-library), Health & Society database (via Informit– e-library), from January 1989 to June 2009. Systematic reviews meeting the inclusion criteria were identified by searching the Cochrane Library, and Database of Abstracts of Reviews of Evidence (DARE).

Search terms relating to accessibility to health care, primary health care, and diabetes, PAP testing or episodic care were used. Medical Subject Headings (MeSH) were used in combination with relevant keywords. These MeSH search terms were modified to match coding frames used for the other databases; a detailed description of search terms used is included in Appendix 1.

Initially electronic databases were searched for 14 conditions across the 3 domains of care. The results are outlined in Appendix 2. In total 7,868 citations were identified across all black literature searches. We then scoped the review down to one example per domain of care; these were diabetes as an example of chronic disease management, PAP testing of preventive care and timeliness, after-hours care and continuity as examples of episodic care.

'Grey' literature

A pragmatic search for non-peer reviewed documents and reports (grey literature) was undertaken. These documents were identified through general search of websites of government departments, professional organisations, universities and other relevant organisations (Appendix 3). The members of the research team, reference groups, and other key informants identified additional documents. Where specific research groups or programs were identified through peer reviewed literature and other sources a specific search of the relevant website was undertaken and where necessary we approached the authors.

Snowballing

We reviewed bibliographies of all primary research papers included in the review, relevant reports and systematic reviews to identify further documents.

2.3 INCLUSION AND EXCLUSION CRITERIA

Studies were included if they addressed the selected examples from the domains of chronic, preventive, and episodic care, measured access in terms of use of services, targeted adults aged 18 or older, and were published in English between 1989 and June 2009 in any countries of interest (Table 1).

Table 1: Inclusion criteria

Domain of care	• Diabetes mellitus management and prevention • PAP testing • Episodic care (continuity, timely access, after-hours care)
Access measure	• Service use, (including retention and return rates) • Receipt of recommended care processes (tests, examinations, medication, referrals to allied health and specialists, follow-up) • Continuity of care (being able to see the your regular physician) • Waiting time (to next available appointment; in the practice), or • Patient delay of service use
Countries	Australia, Canada, New Zealand (NZ), USA, UK and other western European countries
Study population	Adults 18yrs or older
Publication period	1989 to June 2009
Language	English

The measures of access were related to aspects of service use. Thus, only indicators such as service use and receipt of recommended care processes were included. We excluded studies that only reported proxy indicators of access such as clinical patient outcomes, hospitalisation rates for ambulatory care sensitive conditions, perceived access, intention to use the service, awareness of the service, and patient satisfaction.

2.4 SCREENING AND DATA EXTRACTION

All research articles identified through literature searches were included in an Endnote library database. Studies were selected for inclusion in three stages.

STAGE 1: TITLE AND ABSTRACT SCREENING

At this stage documents were excluded if:

- the title indicated no direct relevance to an aspect of access to 'best practice' PHC ,
- the abstract was missing and the title suggested no direct relevance to the review.

The project staff (YK, BC, NF) screened titles and abstracts (black and grey literature) using a validation form (Appendix 10). Where there was doubt a study was reviewed by another member of the research team (EC). All of the unsure articles and a subset of the excluded articles were screened independently by other members of the research team. Any disagreements were discussed within the group. Where there was insufficient information to make a decision, the article remained on the list.

STAGE 2: VERIFICATION & CLASSIFICATION

Attempts were made to obtain full-text copies of all articles screened and included for further follow up. We used online sources, library visits, and inter-library loan requests to do this. In some cases the authors were approached for copies or for further information.

Stage 2 screening for the methods and results confirmed measures of relevance to access to health care. All unsure or excluded papers were checked by another member of the research

team. Where there were differences in interpretation, these were discussed within the research team and agreement reached.

Identified studies were then categorised into descriptive studies and intervention studies. Descriptive studies provided information on the factors that influence access to best practice PHC (Question 1). Intervention studies included all studies that tested or evaluated interventions to enhance access to best practice PHC (Question 2). These studies were further differentiated to identify a subset of studies that evaluated the impact of an intervention on access using measures outlined in table 1 (evaluated interventions, Question 3)

STAGE 3: DATA EXTRACTION

Data that was required to undertake the review was determined by the research group and a data extraction template was developed using MS Access. Data was extracted from all included 'black', snowballed and 'grey' citations by three reviewers (YK, BC, NF) directly into the database (Appendix 11). Data extraction for all articles that were included in this stage of the review was checked by independent members of the research team (including EC, GPD, MFH, JF, AR).

Where a report described more than one study, separate records were created for each study. If several citations addressed the same study, the records were marked as linked. Further citations were excluded during this stage if eligibility for inclusion was questionable. The decision to exclude citations at this stage was made in discussion with the research team.

All additional articles and reports identified through examination of citation list reported by included papers were subject to screening, verification, quality assessment, and data extraction processes described above.

2.5 ASSESSMENT OF STUDY QUALITY

The quality of the studies was assessed using the levels of evidence published by The Royal Melbourne Hospital (30) which is based on the NHMRC and the Oxford (CEBM) classification of levels of evidence as guidance to classify the study designs of included studies. The assessment of study designs was done by three researchers (YK, BC, and NF) and checked independently (EC, GPD).

We assessed the methodological rigor and quality of evidence of the evaluated intervention studies using the Quality Assessment Tool for Quantitative Studies, Effective Public Health Practice Project (See Appendix 12)(31). Every evaluated intervention study was given a quality score based on this assessment. The assessment was done by one researcher (EC).

2.6 DATA ANALYSIS AND SYNTHESIS

The data were analysed separately for questions 1, 2, and 3.

Question 1: What factors (facilitators and barriers) influence access to best practice PHC?

Data for question 1 were derived from the 192 descriptive studies. The factors reported to be associated with access to best practice PHC were analysed qualitatively and categorized into five groups based on schema introduced by Gulliford (4): financial, geographical, organizational, workforce and patient factors. The categorization was done by one researcher (BC) and reviewed by the research team; any disagreement was resolved through discussion. Frequencies were tabulated for these factors across the three domains of care.

Question 2: What interventions have been tested to address differential access to 'best practice' PHC?

Data for Q2 were obtained from 141 intervention or evaluation papers (121 studies). Where several multiple papers related to one study, only the paper best describing the intervention was included. Interventions were grouped into 8 broad categories with 37 subcategories. Frequencies were tabulated for domains of care and intervention types. Intervention types were classified matching the same five categories described above. When studies used multiple strategies these were included in each of the relevant subcategories.

Question 3: What is the evidence of effectiveness of these interventions?
This was based on evaluated interventions. Frequencies were tabulated for intervention types and types of outcome measures, noting the direction of the impact (positive, negative, mixed, no change). Successful and unsuccessful interventions were compared in regards to the intervention types used, their combination, the type of setting and provider, characteristics of the target population and at what level of the socio-ecological model (Figure 1), they were implemented. Intervention studies were also examined in regards to differential impacts for certain sub-populations as well as reported cost-effectiveness data.

2.7 LITERATURE REVIEWS

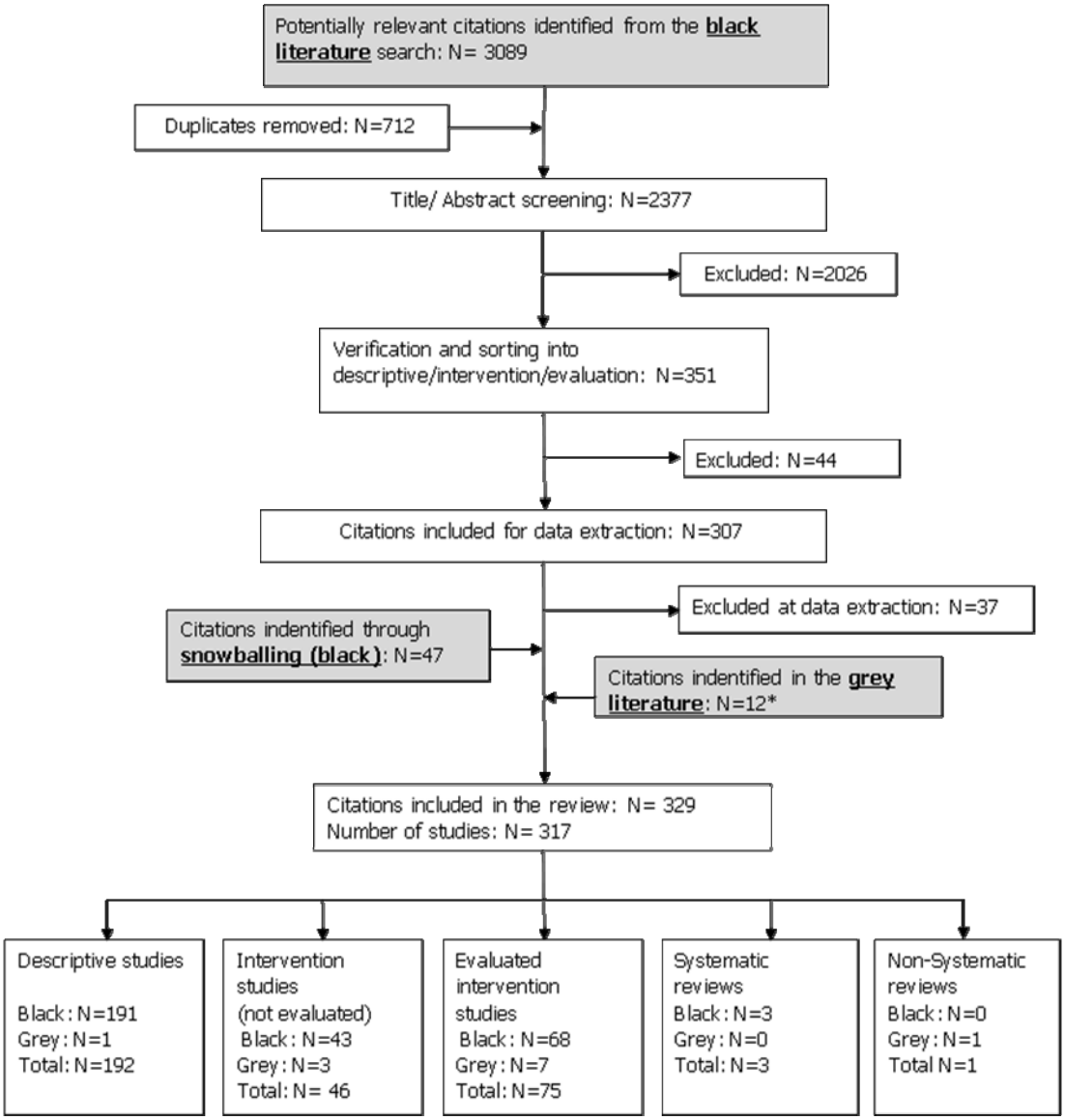
Systematic and non-systematic literature reviews were identified through the same search process. Three systematic reviews (1 for PAP testing, 2 for diabetes care) and two non-systematic reviews (diabetes care) were included in our review. We analysed individual studies from these reviews separately if they met the inclusion criteria.

3. RESULTS

3.1 SEARCH RESULTS

The search and screening results across the three domains of care (diabetes, PAP testing, episodic care are presented in Figure 2. Overall 329 citations were included in the review. These related to 317 studies.

Figure 2: Flowchart for diabetes, PAP testing and episodic care literature searches



**Note: One of the 11 reports identified from the grey literature described 5 different interventions and is, therefore, counted as 5 studies.*

Overall, 88 studies met the criteria for access to diabetes care, 171 for PAP testing and 58 for episodic care. Studies from different countries focused on different care domains (Table 2). United States of America (USA) studies were most often concerned with access to PAP testing (67.9%) and secondly, to diabetes care (24.7%), with few studies addressing episodic care (7.4%). Studies from the United Kingdom (UK) most frequently focused on access to episodic care (56.8%) such as Advanced Access and out-of-hours care, secondly on diabetes care

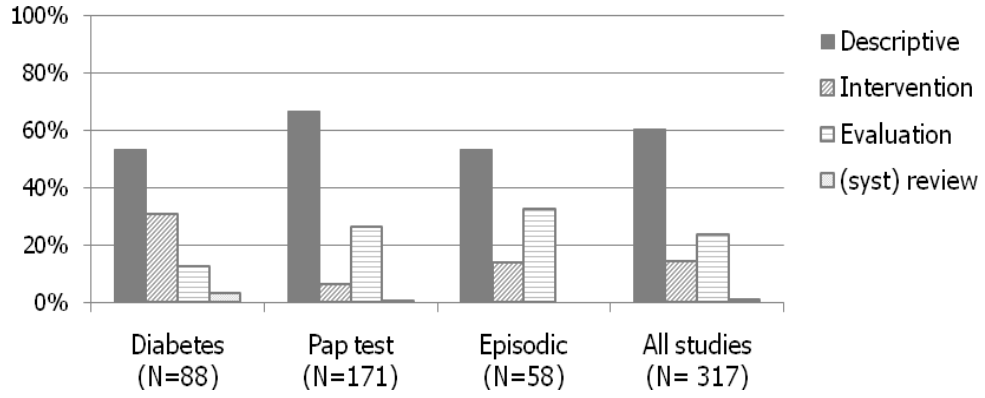
(31.8%), and infrequently on access to PAP testing (11.4%). In Australia and NZ, the literature covered the three care domains more evenly (Table 2).

Table 2: Frequency of identified studies stratified by country of origin and domain of care

	Australia/ NZ		UK		USA		Other		Total	
Country	n	%	n	%	N	%	n		n	%
Diabetes	23	38.3	14	31.8	40	24.7	11	20.0	88	100
PAP testing	22	36.7	5	11.4	110	67.9	34	61.8	171	100
Episodic	11	18.3	25	56.8	12	7.4	10	18.2	58	100
Total	60	18.7	44	13.7	162	50.5	55	17.1	321	100

Figure 3 shows that across all three domains of care, the majority of studies were descriptive. The ratio of evaluated intervention studies to intervention studies was much lower for diabetes (13% to 31%) than for PAP testing (26% to 6%) and episodic care (33% to 14%).

Figure 3: Frequency of identified studies stratified by study type and domain of care



The reviews included three systematic and one non systematic review. The non-systematic review concerned barriers for multicultural communities to accessing diabetes care in NSW. The diabetes systematic reviews examined the impact of interventions to improve certain processes of care, while the PAP testing systematic review provided an overview of interventions to invite women to cervical cancer screening.

3.2 WHAT FACTORS ARE ASSOCIATED WITH ACCESS TO BEST PRACTICE PHC?

The majority of the 192 descriptive studies was of cross-sectional design (86.5%) and based on large population surveys or administrative data with sample sizes exceeding 100,000 in some studies.

Most studies described more than one factor influencing access (Appendix 4). Table 3 describes the factors that were identified as associated with access to best practice PHC; these are categorised according to our proposed schema and stratified by domain of care.

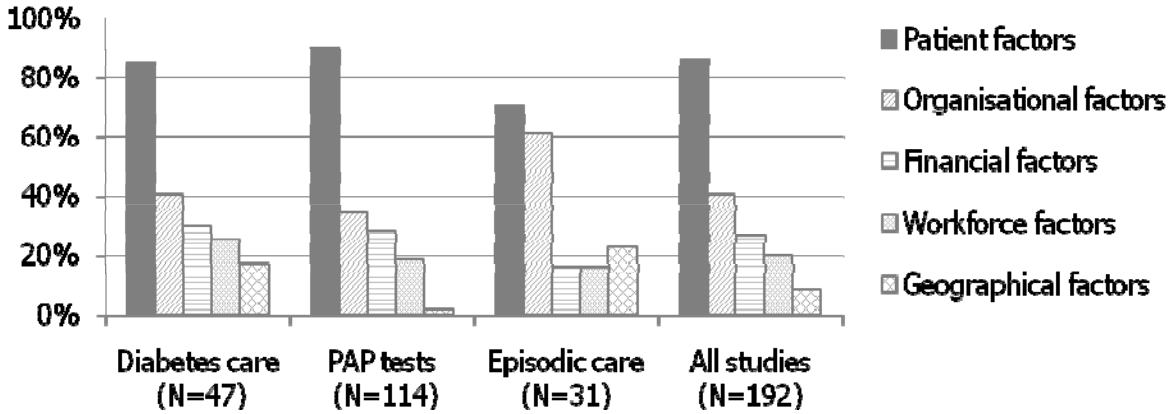
Table 3: Factors associated with access to best practice PHC stratified by domain of care

	Diabetes		PAP testing		Episodic care		Total	
	n	%	n	%	n	%	N	%
Total number of studies	**47**	**100**	**114**	**100**	**31**	**100**	**192**	**100**
Patient factors	**40**	**85.1**	**103**	**90.4**	**22**	**71.0**	**165**	**85.9**
Socio-demographic factors	22	46.8	59	51.8	10	32.3	91	47.4
Psychosocial factors	13	27.7	47	41.2	8	25.8	68	35.4
Special needs	11	23.4	30	26.3	2	6.5	43	22.4
Health factors	21	44.7	10	8.8	8	25.8	39	20.3
Behavioural factors	6	12.8	18	15.8	1	3.2	25	13.0
Organisational factors	**19**	**40.4**	**39**	**34.2**	**19**	**61.3**	**77**	**40.1**
Provider/Practice care continuity	4	8.5	24	21.1	3	9.7	31	16.1
Appointment system	1	2.1	3	2.6	12	38.7	16	8.3
Recall/reminder systems & information management	3	6.4	6	5.3	7	22.6	16	8.3
Type of care organisation	1	2.1	6	5.3	2	6.5	9	4.7
Practice work-/caseload	5	10.6	1	0.9	1	3.2	7	3.6
Practice size	3	6.4	1	0.9	1	3.2	5	2.6
Organisational culture	0	0.0	4	3.5	1	3.2	5	2.6
Accessibility of practice	1	2.1	1	0.9	2	6.5	4	2.1
Care coordination/ Comprehensiveness	0	0.0	3	2.6	0	0.0	3	1.6
Other	4	8.5	2	1.8	0	0.0	6	3.1
Financial factors	**14**	**29.8**	**32**	**28.1**	**5**	**16.1**	**51**	**26.6**
Insufficient or no health insurance	4	8.5	28	24.6	2	6.5	34	17.7
Cost to patients for service and for supplies and services	8	17.0	4	3.5	1	3.2	13	6.8
Inadequate provider remuneration	3	6.4	0	0.0	2	6.5	5	2.6
Other	2	4.3	1	0.9	0	0.0	3	1.6
Workforce factors	**12**	**25.5**	**21**	**18.4**	**5**	**16.1**	**38**	**19.8**
Technical skills, practice, knowledge	8	17.0	13	11.4	3	9.7	24	12.5
Social/cultural skills/ ability to connect to patient	3	6.4	10	8.8	0	0.0	13	6.8
Teamwork/ skill mix	5	10.6	1	0.9	1	3.2	7	3.6
Workforce shortage	1	2.1	2	1.8	1	3.2	4	2.1
Geographical factors	**8**	**17.0**	**2**	**1.8**	**7**	**22.6**	**17**	**8.9**
Distribution of services	4	8.5	1	0.9	5	16.1	10	5.2
Distance to service	3	6.4	0	0.0	2	6.5	5	2.6
Distribution of workforce	1	2.1	1	0.9	0	0.0	2	1.0

**Note: most studies describe more than one factor across and within categories, therefore, numbers do not add up to total and subtotals.*

Figure 4 demonstrates that patient factors that were most commonly identified as influencing access to best practice PHC (85.9% of total). Organisational factors were identified (40.1%); these were a particular issued for episodic care (61.3%). Financial factors and workforce factors were less common (26.6% and 19.8% of all descriptive studies) and geographic factors were most rarely reported (8.9%). Being mostly cross sectional, these studies could only indicate association and not causality; and none of the papers attempted to propose theoretical causal pathways.

Figure 4: Access factors by domain of care



The table demonstrates that many of the factors that were associated with access to best practice PHC could act as either barriers or facilitators (Table 4). Factors that were associated with increased use of access were referred to as facilitators and those that were associated with reduced access as barriers. Some factors could be either facilitators or barriers depending on situation.

Table 4: Impact of more commonly reported factors on access to best practice PHC

Factor type	Factor (# studies)	Association with Access		
		Diabetes care	PAP testing	Episodic care
Socio-demo-graphic	Increasing age of patient (45)	↑ (very old patients↓)	↓	↓ same-day appointments and after-hours care
	Patient's ethnicity (31)	↓ receipt of recommended tests ↑ smoking assessment	↓ ↑ if living in a ethnic neighbourhood	↓continuity of care
Health	Comorbidity / poor general health status (25)	↑ for some comorbidities. Patient perceived barrier	↓↑	↓Same-day appointments, due to need for continuity.
Special needs	Low health literacy (27)	↓	↓	Not reported in literature
	Language barriers (14)	↓ receipt of care processes	↓ for some ethnic minorities	Not reported in the literature
Psycho-social	Social support (23)	↑	↑ across different ethnic groups	↓ attending without appointment
Organisational	Having a regular care provider (31)	↑	↑	↑continuity and timely access, and lowers cost to patient
Financial	Insufficient or no health insurance (34)	↓	↓	↓ continuity of care
Workforce	Insufficient technical skill/ knowledge (24)	↓	↓ (No doctor's recommendation)	No association (1 study only)

PATIENT FACTORS

Patient factors that influenced access to best practice PHC included socio-demographic factors, health factors, special needs, and psychosocial and behavioural factors (Table 3). Age and ethnicity were the most commonly described socio-demographic factors across the three domains of care. Table 4 shows how increasing age impacts on access differently between the three domains of care. For diabetes, studies found that increasing age was associated with increased receipt of recommended processes of PHC despite guidelines suggesting similar need independently of age. There were suggestions, that age was associated with greater need for recommended care due to more advanced diabetes (32). For episodic care the associations with age were mixed, for example older people valued continuity of care, but were less concerned about access to out-of-hours care and same-day appointments.

Across the three domains, studies reported differences in access for different ethnic groups. Diabetes studies reported decreased likelihood of receiving recommended care processes for patients from ethnic minorities but increased likelihood of having their smoking status assessed, although without receiving smoking advice (33). In the PAP testing literature a poorer access to PAP testing for ethnic minority populations was commonly described; although, this association was moderated if patients were born in the host country (34-38) or lived in a neighbourhood that had a high proportion of people with a similar ethnic background (39) or in an area with lower primary care physician supply (39, 40).

Overall, 13% of studies across the domains of care linked comorbidity and patients' general health status to access to best practice PHC. However, evidence was mixed and, for access to PAP testing, even conflicting. Some studies suggested that comorbidity was associated with increased likelihood of receiving recommended processes of care due to higher frequency of visits to the GP (41), while other studies reported that, where there were more complex care need, some processes of care were less likely to be provided (42-47). At the same time studies found that women who felt healthier were less likely to access PAP testing (48, 49).

Low health literacy, including alternative health beliefs, were associated with barriers to patients accessing diabetes care and PAP testing, while no association was reported for episodic care.

Social support was associated with facilitation of access to best practice PHC. This factor was most frequently described in the PAP testing literature and was found to facilitate access across many ethnic groups. For PAP testing, having friends or family members who had participated in screening increased the rates of participation. For episodic care, lack of social support and marital problems were reported to be associated with higher likelihood for attending without appointment (50).

ORGANISATIONAL FACTORS

Having a regular health care provider or a usual source of care was associated with access to best practice PHC (Table 3). For episodic care, having a usual source of PHC was associated with better continuity of care; for diabetes care and PAP testing, having a usual source of care was associated with increased likelihood of receiving recommended care processes for diabetes and receipt of PAP testing.

FINANCIAL FACTORS

Lack of health insurance or insufficient health insurance was described as a barrier to access to best practice PHC across all three domains of care; and was a particular issue for studies from the USA. For episodic care, evidence from the USA showed that people with health insurance value continuity of care more highly than those without, and that those who valued continuity were likely to see their usual physician (51).

WORKFORCE FACTORS

Insufficient technical skills and knowledge of health care providers as well as physician's oversight were factors that were associated with receipt of recommended PHC (Table 3). Several studies reported that the lack of doctor's recommendation for testing was negatively associated with receipt of PAP testing.

GEOGRAPHICAL FACTORS

A number of issues relating to distribution of services and workforce, and travel distance to PHC were described by only a few studies (Table 3). Unavailability of services travel distance to services on a community level were reported as barriers to care, although geographical proximity lost its importance with increasing age for people living in rural areas (52).

LITERATURE REVIEWS

A non-systematic literature about prevention of diabetes in culturally and linguistically diverse communities in NSW (53) found language and cultural beliefs, low education, low literacy level and low socio-economic status to be barriers to access to health information and preventive diabetes care. These findings are in line with the descriptive studies that found association between acculturation rates and access to best practice primary health care.

3.3 WHAT INTERVENTIONS HAVE BEEN TESTED TO ADDRESS ACCESS TO BEST PRACTICE PHC?

The interventions reported to enhance access to best practice PHC were identified and analysed qualitatively. There were 141 papers that referred to 121 published studies of interventions. In addition, three systematic and one non-systematic reviews were included in the analysis. The interventions that were tested frequently included multiple strategies. Thirty seven different types of strategies were identified. These are summarised in Table 5 and are grouped according to our proposed schema and stratefied by domain of care.

Figure 5 shows the distribution of the factors that were associated with differences in access to PHC classified according to our proposed schema in the descriptive literature and distribution of the factors classified according to the schema that were addressed by interventions to enhance access. While the majority of the factors where there was a described association with access to best practice PHC were concerned with patient-side issues, the majority of interventions reported to enhance access to best practice PHC addressed provider-side issues, most notably practice organisational issues.

Figure 5: Access factors addressed in descriptive and intervention studies

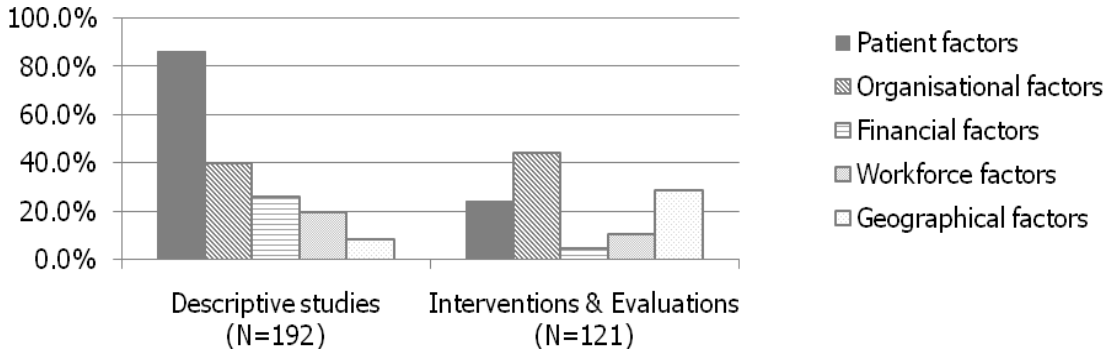


Table 5: Typology of strategies to enhance access to best practice PHC identified from intervention studies and stratified by domain of care

	Diabetes		PAP testing		Episodic care		Total	
Type of strategy	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Patient support	**12**	**31.6**	**37**	**66.1**	**2**	**7.4**	**51**	**42.1**
Raising awareness/patient education	9	23.7	19	33.9	2	7.4	30	24.8
Enhanced self-management	3	7.9	0	0	0	0	3	2.5
Culturally appropriate materials	2	5.3	15	26.8	0	0	17	14.0
Personalized invitation letter	0	0	5	8.9	0	0	5	4.1
Personal health book records	0	0	2	3.6	0	0	2	1.7
Telephone counselling	0	0	2	3.6	0	0	2	1.7
Help to get regular source of care	0	0	1	1.8	0	0	1	0.8
Service organisation	**28**	**73.7**	**27**	**48.2**	**18**	**66.7**	**73**	**60.3**
Reorganisation of practice	**15**	**39.5**	**5**	**8.9**	**17**	**63.0**	**37**	**30.6**
Group visits	4	10.5	0	0	0	0	4	3.3
Disease specific clinic	5	13.2	3	5.4	0	0	8	6.3
Multidisciplinary team	7	18.4	0	0	0	0	7	5.8
Change in appointment system	1	2.6	0	0	9	33.3	10	8.3
Telephone triage by GP	0	0	0	0	3	11.1	3	2.5
GP after hours clinic and services	0	0	0	0	4	14.8	4	3.3
Enhanced staff roles	3	7.9	2	3.6	5	18.5	10	8.3
Telephone consultations for follow up	0	0	0	0	3	11.1	3	2.5
Systems to support practice	**11**	**28.9**	**17**	**30.4**	**1**	**3.7**	**29**	**24.0**
Call/ recall system	6	15.8	9	16.1	0	0	15	12.4
Reminders for patient	0	0	6	10.7	1	3.7	7	5.8
Reminders for provider	3	7.9	6	10.7	0	0	9	7.4
Computerized monitoring system	2	5.3	0	0	0	0	2	1.7
Patient register	2	5.3	0	0	0	0	2	1.7
Decision support, e.g. flow charts	5	13.2	2	3.6	0	0	7	5.8
External support for practice	**2**	**5.3**	**5**	**8.9**	**0**	**0**	**7**	**5.8**
Disease specific register	2	5.3	4	7.1	0	0	6	5.0
Health professional support	0	0	1	1.8	0	0	1	0.8
Financial support	**6**	**15.8**	**3**	**5.4**	**4**	**14.8**	**13**	**10.7**
Practice incentive payment	3	7.9	0	0	0	0	3	2.5
Reduced cost/free service	3	7.9	1	1.8	3	11.1	7	5.8
Financial incentives for patients	1	2.6	2	3.6	1	3.7	4	3.3
Workforce development	**16**	**42.1**	**8**	**14.3**	**1**	**3.7**	**25**	**20.7**
Education of general practitioners	7	18.4	3	5.4	0	0	10	8.3
Education of other PHC providers	9	23.7	2	3.6	1	3.7	12	9.9
Training of non-health professionals	0	0	4	7.1	0	0	4	3.3
Geographical intervention	**8**	**21.1**	**11**	**9.6**	**15**	**55.6**	**34**	**28.1**
Outreach service	**8**	**21.1**	**11**	**9.6**	**2**	**7.4**	**21**	**17.4**
Screening in community setting	5	13.2	0	0	0	0	5	4.1
Specialist outreach service	1	2.6	0	0	0	0	1	0.8
Home visits and phone outreach	1	2.6	5	8.9	2	7.4	8	6.6
Workplace outreach service	2	5.3	0	0	0	0	2	1.7
Disease specific clinics run outside	0	0	6	10.7	0	0	6	5.0
Other services to improve access	**0**	**0**	**0**	**0**	**13**	**48.1**	**13**	**10.7**
Walk-in centres	0	0	0	0	4	14.8	4	3.3
NHS Direct and similar services	0	0	0	0	7	25.9	7	5.8
GP cooperative based in hospital	0	0	0	0	4	14.8	4	3.3

**Note: most studies describe more than one intervention within categories, therefore numbers do not add up to total and subtotals*

SERVICE ORGANISATION

Sixty percent of intervention strategies related to service organisation encompassing three main sub-categories: reorganisation of practice (30.6%), systems to support practice (24 %) and external support for practice (5.8%). Within these categories the predominant strategies were implementation of call/recall systems, changes in appointment systems in the practice, enhanced involvement of the nurses, generation of reminders for provider, running diabetes and PAP testing clinics.

PATIENT SUPPORT

Forty two percent of intervention strategies related to patient support to seek care (42.1%). Raising awareness and patient education were the most frequently tested approaches across the three domains of care (24.8%) and included strategies such as mass media public education campaigns, use of educational materials (such as posters, leaflets and brochures), and educational programs for patients. Strategies for provision of culturally appropriate materials and services such as multilingual fact sheets, pamphlets, and culturally appropriate educational programs were frequently also reported (14%). Other strategies such as personalised invitation letters, enhanced self management and tailored telephone counselling were used in limited number of studies.

GEOGRAPHICAL INTERVENTIONS

Interventions included a number of strategies to address the geographical distribution of services. Outreach services (17.4%) were commonly reported. These included home visiting and telephone outreach that aimed to prompt access to PHC follow up or care; and specific clinics for example multidisciplinary clinics to improve access to diabetes care or encourage uptake of PAP testing that were conducted in PHC practices or in other community-based locations. There were a number of interventions that tested the role of new services to improve access through increased availability of services, for example, walk-in centres, telephone triaging, and GP cooperatives (10.7%).

WORKFORCE DEVELOPMENT

A number of strategies (20.7%) aimed to build workforce capacity to improve access to best practice PHC. These included educational programs for GPs and other health professionals to increase their knowledge and skills to deliver best practice PHC, and training of other health professionals and non-health professionals to undertake specific or general tasks relating to implementation of best practice PHC.

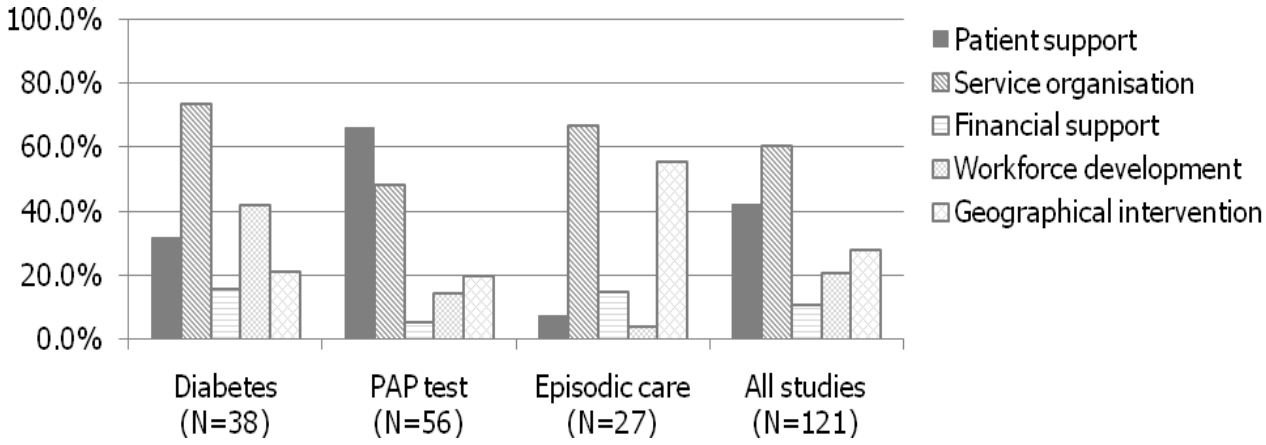
FINANCIAL SUPPORT

The least reported types of strategies across all domains of care were those for financial support of practice or patient (10.7% of the studies). These strategies included offer of reduced cost or free screening service (5.8%), transport vouchers or free transport services for patients (3.3%) and, practice incentive payments (2.5%).

STRATEGY TYPE BY DOMAIN OF CARE

The types of interventions tested to enhance best practice PHC varied by domain of care. This was reflected in the range of strategies that comprised the interventions (Figure 6).

Figure 6: Frequency of strategies to enhance access to best practice PHC stratified by domain of care



While strategies to enhance access to diabetes and episodic care were most commonly concerned with reorganisation of services, the strategies to do this differed. Organisational strategies to enhance access to best practice PHC for patients with diabetes involved development of practice-based systems to enhance implementation of processes of care to identify, treat, and monitor the condition and prevent progression. The organsiational interventions and strategies used to enhance episodic care concerend practice systems and new services to ensure more timely access by patients should they require services. Other reported strategies to enhance access to best practice PHC for patients with diabetes also included workforce development and patient support. Other strategies relating to episodic care were related to organisational issues in involved strategies to improve distribution of PHC services.

Strategies to enhance access to PAP testing most commonly aimed to enhance patient support to encourage positive decisions to access PAP testing. These were also concerned with the organisation of services to encourage access to testing by patients.

Strategies to address financial barriers to health care were infrequently reported across all three domains. In the episodic care domain, workforce development and patient support strategies were also infrequently reported.

Results from systematic reviews

The diabetes systematic reviews examined the impact of interventions to improve certain processes of care and improvement of practice information systems. The PAP testing systematic review provided an overview of interventions for raising awareness and the provision of invitations to women to attend for cervical cancer screening.

3.4 HOW EFFECTIVE ARE INTERVENTIONS TO ENHANCE ACCESS TO BEST PRACTICE PHC?

OVERVIEW

We identified 75 intervention studies that evaluated the impact of the intervention on measures of access. Their characteristics by domain of care, country, setting, provider, target population and level of implementation are summarised in Appendix 5. Evaluated intervention summaries, strategy types, study design, quality level and outcome measure (for example, change in the number of people using the service or receiving recommended processes of care, and change in waiting time) are presented in Appendix 6. Among these evaluated intervention studies, 55 (73%) reported significant positive outcomes, 18 (24%) reported no change or combined significant positive and negative change and a small number (3%) showed significant negative results (Appendix 7).

METHODOLOGY ISSUES

The proportion of evaluated intervention studies within the diabetes domain that evaluated impact on access was relatively low (28.9%) compared to PAP testing (80%) and episodic care (70%). Many studies that purported to address access to diabetes care reported measures of clinical control, not access and were subsequently excluded.

The quality of evaluated intervention studies was variable. The study designs used most commonly were before and after studies or cluster randomized controlled trials (Appendix 6). Using the Quality Assessment Tool we classified the methodological rigor of studies as high (37%), moderate (17%) and low (46%) (31) (Appendix 8). Where the evaluation extracted data from an administrative data collection there were improved opportunities for follow up of patients through avoidance of individual follow up.

Most evaluated intervention studies used more than one measure related to access. The most commonly reported was service use (90%) followed by receipt or delivery of care processes (15%) and use of other services (9%). Waiting time or timeliness of care was measured in 8% of studies (Appendix 7).

EFFECTIVENESS BY NUMBER OF STRATEGIES USED

Most evaluated interventions used a single strategy (61%). However, evaluated interventions employing more than one strategy were more likely to report positive results (Table 7).

Table 7: Frequency of evaluated intervention studies stratified by number of strategies included and domain of care

Domain of care	One*	Two*	Three or more*
Diabetes	4 (3+)	5 (4+)	2 (2+)
PAP testing	27 (15+)	13 (11+)	5 (5+)
Episodic care	15 (12+)	2 (1+)	2 (2+)
Total number of studies	**46 (30+)**	**20 (17+)**	**9 (9+)**

** Number of strategies*
(+): number of studies in the group that reported positive results

The most common components of multi-strategy evaluated intervention studies involved raising patient awareness, patient education, provision of culturally appropriate materials and services, and the implementation of call/recall systems in PHC practice. Among evaluated interventions studies that employed three or more strategies, patient support was used in all but one; the most common configuration was patient support, workforce development and geographical

intervention. One PAP testing evaluated intervention involved an outreach PAP testing clinic, provision of culturally appropriate materials, paper based recall system and free transport service (54).

Only two evaluated intervention studies employing more than one strategy showed a negative impact on access to PHC. One was related to the establishment of a culturally appropriate PAP testing clinic and differed from effective evaluated interventions by the reach of the clinic and intensity of the intervention (less community involvement in a PAP screening campaign and change in provider activity) (55). In the second study, despite the availability of the out-of-hours triage service, there were additional factors influencing its effectiveness, such as transport barriers and convenience of the service for the targeted population (56).

EFFECTIVENESS OF EVALUATED INTERVENTIONS BY STRATEGY TYPE

Table 8 shows the effectiveness of different strategies by domain of care. While the most common type of strategy was service organisation, followed by patient support, workforce development, financial support and geographical intervention were most consistently associated with successful outcomes. The results for different types of strategies are discussed in descending order of frequency of effectiveness.

Table 8: Effectiveness by strategy type and domain of care

Strategy type	Diabetes		PAP testing		Episodic care		All domains	
	N (sign.)	% *	N (sign.)	% *	N (sign.)	% *	N (sign.)	% *
Patient support	2 (2)	100	26 (17)	62	1 (1)	100	29 (20)	69
Service organisation	8 (7)	88	25 (19)	76	10 (7)	70	43 (33)	77
Financial support	3 (3)	100	2 (2)	100	4 (3)	75	9 (8)	89
Workforce development	4 (4)	100	7 (7)	100	0	0	11 (11)	100
Geographical intervention	1 (1)	100	8 (7)	88	10 (7)	70	19 (15)	79
Total number of studies	**11 (10)**	91	**45 (31)**	69	**19 (14)**	74	**75 (55)**	73

Note: *most studies describe more than one factor across and within categories, therefore, numbers do not add up to total and subtotals.*

** The proportion of studies that reported significantly positive outcome*

SERVICE ORGANISATION

Effective strategies: Most reported strategies (77%) were successful. Successful strategies included implementation of call/recall systems, patient and provider prompts and reminders, changes in the appointment system in the practice, enhanced staff roles in care provision, and establishment of disease specific clinics. The majority were implemented at the practice or PHC level of the health system. The PHC setting or provider did not influence the effectiveness of strategies.

Strategies with no evidence for effectiveness: Strategies with no change in access also employed implementation of patient and provider reminder systems, but these were less personalized and lacked intensive follow up, in comparison with effective ones (57), (58), (59). In addition other factors, such as younger age or insurance status were independently associated with the lack of effectiveness (60).

PATIENT SUPPORT

Effective strategies: Most evaluated intervention studies providing patient support to enhance access originated from the PAP testing domain (26 studies); only 2 studies were from the

diabetes domain and one from episodic care. Most studies with significant positive results employed strategies aimed at raising awareness, patient education and providing culturally appropriate materials and services.

Strategies with no evidence for effectiveness: Evaluated intervention studies that did not report enhanced access to best practice PHC used single strategies (for example educational sessions or mass media campaigns (61), (62) and had low intensity and reach (63).

GEOGRAPHICAL INTERVENTIONS

Effective strategies: Evaluated intervention studies of geographical interventions were predominantly from episodic care and PAP testing domains; 80% showed significant improvement in access. Successful interventions in this group were home visits, phone outreach and NHS Direct, and similar telephone triage services.

WORKFORCE DEVELOPMENT

Effective strategies: All evaluated intervention studies concerning workforce development strategies were from the diabetes and PAP testing domains and demonstrated significant positive changes in access to care. About half of these strategies were education programs for nurses, Aboriginal health workers and other PHC staff and GPs.

FINANCIAL SUPPORT

Effective strategies: There were few evaluated interventions that tested financial support, such as removing financial barriers to access. Most (90%) showed a positive change in access, targeted patients, and involved reduced cost or free service, and financial incentives.

STUDIES WITH NEGATIVE RESULTS

Only three evaluated intervention studies reported negative results. The first involved the establishment of an open access appointment system and was not tailored to the needs of diabetic patients, thus it created barriers to access to processes of care (64); the second concerned a doctor-operated telephone triage system (56); and the third the establishment of culturally appropriate PAP testing clinics (55).

EFFECTIVENESS BY DOMAIN OF CARE

Majority of the effective evaluated intervention studies originated from USA (17), Australia (16) and UK (13). In the diabetes domain in six studies significant positive change in access was reported in Australian and UK studies, in contrast with the one ineffective study that originated from USA. In the episodic care domain, mostly UK studies reported effectiveness in development of new appointment systems or services to support same day access, for example triaging or walk-in centres. In the PAP testing domain the effective and ineffective strategies originated from USA and Australia.

DIABETES

In the diabetes domain most evaluated intervention studies reported strategies to change in service organization to better support implementation of care processes; 70% reported significant positive outcomes. The most effective strategies involved use of multidisciplinary teams, diabetes clinics, implementation of patient recall arrangements, and decision support systems in the practice, provision for groups visits for patients, and up skilling of PHC providers (Table 9). These strategies were implemented at primary health organization, community and practice levels of the health system and it was difficult to conclude what role individual strategies had in the success of the intervention. The intervention which showed negative change in access involved a major change in practice appointment system that was not tailored to the need of diabetic patients and created additional barriers to access to processes of care (64).

Priority groups – Majority of the effective strategies targeted general population of diabetes patients or urban African Americans with diabetes and did not report differential access

outcomes. In contrast, the ineffective study targeted urban low SES population of diabetes patients and showed decrease in likelihood to get processes of diabetes care (64).Table 9: List of most effective diabetes strategies and access outcomes

Strategy type	Effective Strategies	Access Outcomes
Service organisation (7)*	Multidisciplinary team Disease specific clinic Group visits Call/ recall system Patient register Decision support, e.g. flow charts Computerized monitoring system	Care processes (6) Use of the service (3) Retention rate (1) Follow-up rate (1)
Workforce development (4)*	Education of other PHC providers, e.g. Nurse, AHW, CHW Education of general practitioners	Care processes (4) Use of the service (2) Retention rate (1)
Financial support (3)*	Reduced cost/free service Financial incentives for patients	Care processes (3) Use the service (1)
Patient support (2)*	Raising awareness/patient education Enhanced self-management	Use the service (2) Care processes (1) Follow-up rate (1)

** Number of studies*

PAP TESTING

Evaluated interventions studies in the PAP testing domain employed a variety of strategies to enhance access to best practice PHC. Intervention studies used variable combinations of strategies, targeted different population groups with variable reach, and used variable outcome measures. Combined strategies demonstrating positive change in access included: patient support plus service organisation strategies; and geographic intervention plus patient support; and all were effective.

Most studies examined a single strategy. Those strategies reporting positive results involved raising patient awareness using mass media campaigns, provision of bilingual health workers, educational programs targeting specific population groups, well designed culturally and linguistically appropriate interventions and services, and systems to support practice (Table 10).

Table 10: List of most effective PAP strategies and access outcomes

Strategy type	Effective Strategies	Access Outcomes
Service organisation (19)*	Call/ recall system Reminders for patient Reminders for provider Disease specific register	Use of the service (19) Patient delayed service use (1) Return rates (1)
Patient support (17)*	Raising awareness/patient education Culturally appropriate materials and services Personalized invitation letter	Use of the service (16) Return rates (1)
Workforce development (7)*	Training of non-health professionals Education of general practitioners	Use of the service (7)
Geographical intervention (7)*	Outreach disease specific clinic Home visits and phone outreach	Use of the service (7)

** Number of studies*

Intensity and personalisation of interventions showed significant positive outcomes.

The type of provider, the health care setting, or level of the health system where the intervention was implemented did not play a role in the effectiveness of the intervention.Thirty percent of evaluated intervention studies showed no change in access or the result was a combination of positive and negative changes. The ineffective interventions were either not tailored to the need of the targeted population (for example immigrant South Asian women who experienced a number of barriers to PAP testing), had lack of or not enough involvement of the community, or the target population had different screening status. The majority of these strategies were conducted within the practice, rather than in the community setting, where the majority of the successful strategies were implemented.

Priority groups – PAP testing strategies targeted women from different geographical areas, various age-groups and ethnic populations. Evaluated interventions studies with positive outcomes included three groups of women: those with low knowledge about PAP testing, those who know about testing and are slow to respond but will come eventually, and those who had never had a PAP testing or had negative experience. Studies that reported no evidence of effectiveness or mixed evidence targeted hard to reach ethnic minority groups or general female population from different age groups. Studies reported variable responses relating to age, for example some interventions increased uptake in older but not younger women. Effective outcomes were reported from studies among ethic minorities, marginalised and disadvantaged population sub-groups that tested the impact of use of lay health workers outreach, multilingual education and tailored invitation letters. These were more effective than community based awareness programs although these types of programs were effective in the general female population.

Episodic care

Within the episodic care domain evaluated interventions reported strategies to improve access to same day appointments. These included implementation of advanced access (change in appointment system), implementation of telephone triage services such as NHS Direct and Health Connect, and implementation of walk-in centres (Table 11). Most were initiated at policy level and implemented at practice level of health system. The setting and the type of the provider did not differ between effective and ineffective interventions. The one study of an out-of-hours service with negative outcomes did not respond to the needs of the target population (56). There were no strategies targeting workforce development.

Table 11: List of most effective episodic care strategies and access outcomes

Strategy type	Effective Strategies	Access Outcomes
Service organisation (7)*	Change in appointment system Enhanced staff roles	Use of the service (6) Continuity (2) Waiting time (4)
Geographical Intervention (7)*	NHS Direct and similar services Walk-in centres GP cooperative based in hospital Home visits and phone outreach	Use of the service (5) Use of other services (3) Waiting time (1)
Financial support (3)*	Reduced cost/free service Financial incentives for patients	Use of the service (3) Use of other services (2)

** Number of studies*

Priority groups: Most studies targeted the general population, as in many of the PAP studies. None explored differentials in change in access to services for particular population subgroups within the study populations. Two studies reported improved perceived access or financially disadvantaged people (56).

3.5 WHAT IS KNOWN ABOUT THE COST AND BENEFITS OF THESE INTERVENTIONS?

Nine studies provided information on the costs and benefits of interventions designed to enhance access to best practice PHC (Appendix 9). Of these, none undertook a cost-effectiveness (CE) analysis of comparative interventions. Overall, the quality of the data collected on resource use was low. Only one study was set in the Australian context. This makes it difficult to generalise issues such as resource use (and therefore costs) which, due to differences in funding, reimbursement and delivery arrangements between jurisdictions, are highly dependent on the context. In general, evidence from UK and European studies on access are likely to be more applicable to the Australian setting as they are set in the context of a more or less universal health care system. In contrast, US studies on access concentrate on sub-populations of disadvantaged individuals who are the most likely to experience difficulties in accessing care in the US health system.

Seven of the nine studies investigated utilisation and costs at the practice level. One study (65), investigated whether having a GP was associated with lower total health care costs, (in the context of the Belgian health care system) and one (66), used sophisticated econometrics techniques to evaluate the impact of the PIP program on the quality of care for diabetes in Australia (66). From this study it can be said that the PIP has increased the probability of providing access to best practice diabetes care; at a higher rate for the Indigenous population compared to the population overall.

Overall, however, the information from this small sample of articles is not able to be used to draw any firm conclusions regarding the costs or cost-effectiveness of interventions, strategies or policies designed to enhance access to primary care.

4. DISCUSSION

The focus of this review was approaches to enhancing access to best practice primary health care in the Australian health care system. This reflects a growing awareness of the importance of high quality PHC as evidenced through the dissemination of best practice management guidelines, the rewarding of evidence based care through the Quality and Outcomes Framework in the UK and the Australian Service Incentive Payments for diabetes care and PAP testing, and ongoing concerns about how widely and how equitably this is distributed.

Access is not well defined in the published literature; there is no agreed definition or conceptualisation, and access can be measured in many different ways (67). Our definition of access as a balance between health service need and use of health services. Figure 1 highlights the importance of factors operating on the patient- and provider-side of the model, and the interaction between them. We determined need in terms of processes of care that met accepted management guidelines (7-10). Taking a normative approach avoided the need to factor in different types of need (e.g. perceived and expressed), and made it possible to take a measure of health service use as a reasonable proxy for access.

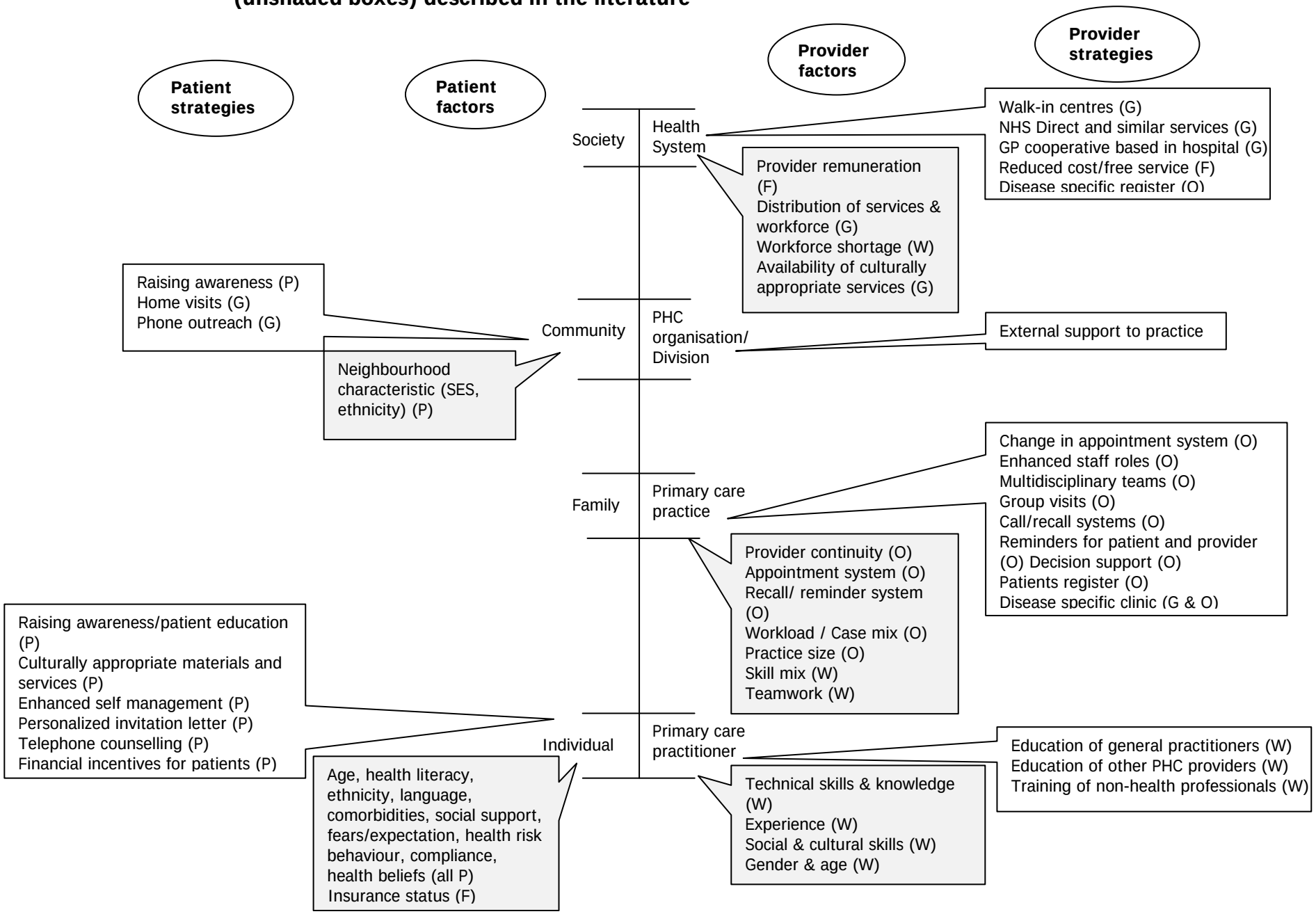
The review was limited to examples from each three domains of PHC: PAP testing from preventive care, management of diabetes mellitus from chronic disease management and timely access with continuity of care for episodic care. Each of these is a common element of PHC for which there are accepted guidelines. We examined these within an ecological model which reflects the hierarchy of factors operating on both provider and patient sides and recognises the importance of system-wide and social phenomena, although these were rarely the focus of any interventions. The categories of factors that influence access to PHC and interventions adopted from Gulliford (financial, geographic, workforce, practice environment, and personal factors) fitted the data and corresponded to well established areas of policy concern (4).

The review was limited to studies from developed countries with generally similar approaches to health care to Australia although with different health insurance systems. It highlighted differences in concerns about access to PHC between countries and the significant impact of universal health insurance on access to PHC. Thus papers from the USA were concerned with access to procedures such as PAP testing and improving access to diabetes care for specific population groups including underinsured patients. The interventions were undertaken within managed care organisations where interest was on improving efficiency and reducing costs of care. This contrasted with the UK which has a system of universal access to free at the point of delivery PHC but issues in the availability of timely access to episodic care. Consequently the UK literature was primarily concerned with access to episodic care, such as same day appointment, and with systems to improve access to PHC, such as telephone triage and out-of-hours care, and secondly with improving access to systems and services relating to diabetes care. The literature from Australia and New Zealand reflected the complex mix of public and private provision and funding of PHC and was concerned with all three domains of care.

4.1 FACTORS THAT INFLUENCE ACCESS

Figure 7 shows the factors influencing access and interventions that were showed to be effective. The two inner columns show the factors for patients and providers and at different levels of the ecological model. The two outer columns show the strategies that have been shown to be effective in improving access to best practice PHC. The following sections discuss the factors, the strategies, and the relationship between them.

Figure 7: Factors influencing access (shaded boxes) and effective interventions to improve access (unshaded boxes) described in the literature



P = Patient factor/support; O = organisational factor/service organisation; W = workforce factor/development; F = Financial factor/support; G = geographical factor/intervention

The descriptive papers identified a wide range of factors. Most were reports from population based surveys and so were able to describe factors associated with access but not provide theoretical explanations for their importance or identify causal pathways underlying differences in access.

Very different factors were identified on the patient and provider sides of our model, predominantly patient and then organisational and workforce factors respectively. However there are strong links between the two sides. Individual and community patient factors such as socio-demographic issues, health status and health literacy help define the need for technical, social, and cultural skills and providers of a particular gender and age, and community socio-demographic factors determine the need for culturally appropriate services. There were, of course, also issues such as service organisation which related only to the provider side and reflected the need to build capacity amongst service providers and within the health system as a whole to respond to patient and community needs.

Only financial factors appeared on both sides and applied across the three domains of care. On the patient-side, this related particularly to insurance status. While this issue was chiefly reported in the USA studies, it was also relevant to Australia, where those without private health insurance are less able to access private allied health providers, and gap payments for Medicare services can be barrier. In 2007, a Commonwealth survey, found that 26% of Australians reported not having accessed needed health care in the past 12 months because of the cost of care (68). On the provider-side, financial factors related mostly to types of remuneration of PHC. Remuneration influences incentives for the provision of particular types of care, implementation of best practice guidelines, and possibly also arrangements for charging patients, including bulk billing in the Australian context.

The links between the two sides highlight the dynamic nature of access as a balance between the needs of patients and communities and the organisation, provision, and funding arrangements for services. Factors were identified at each level on the provider side. This illustrates the need for a well designed health system, for capable organisations, and technically and culturally appropriately skilled providers. Fewer factors were identified at PHC organisation level. Their influence is indirect and often not very visible, and indicates that this level of health service is not strongly developed, at least in Australia and the US. However the PHC organisation level also offers opportunities for systems and services to support individual practices and practitioners and build systems for provision of comprehensive PHC.

On the patient side there were notable gaps in the literature at both society and family level. Absent were issues such as social norms and prejudices which might be expected to have at least an indirect impact on an individual's access to services. While these may be seen as too distant from issues of individual access, they are likely to be particularly relevant to marginalised groups and stigmatised conditions such as mental illness. Potential family issues such as culture and expectation have been investigated at individual and community levels rather than at the family level, but one might expect some specific family issues such as the role of influential family members on decisions about health care to have an impact (69).

The impact of personal factors was often complex and differed across the domains of care: for example increasing age was generally a barrier to access except for diabetes, where access increased up to a certain age and declined thereafter. Age also interacted with the patient's trade-off between timeliness of care and provider continuity, with the latter becoming more important with increasing age. Ethnicity and co-morbidity could be a barrier unless these were specifically addressed, in which case access might be improved. This highlights the need to tailor services to groups of high need and poor access as well as make broad provision in generalist PHC services. Having a regular source of care or provider was seen as facilitating access across all domains. This is a particular issue for countries like Australia where systems for registering patients with particular service providers do not exist.

Some factors were both barriers to and facilitators of access to best practice PHC, and should be seen as factors to be considered in reducing barriers and improving access. This is a reminder that the contexts within which services are provided and used are difficult to influence. These often have conflicting priorities and are subject to underlying constraints of

cost, workforce, professional practices and consumer preferences. This was particularly clear with advanced access, where systems which made access easy for episodic care sometimes made access more complex for those with chronic conditions (64). This complexity was rarely explored in the descriptive literature.

4.2 EFFECTIVE INTERVENTIONS FOR IMPROVING ACCESS TO BEST PRACTICE PHC

More successful interventions were identified for episodic care and PAP testing, where outcome measures tended to be related directly to access (uptake of processes of care, use of services, and reach), than to diabetes care, where outcome measures more often related to clinical measures of disease control rather than use of services.

The great majority of effective strategies were targeted at the provider-side, the arena in which providers can most directly intervene (Figure 7). The most widely used types of effective interventions involved strategies to organise patients to attend services and providers to ensure that they received appropriate care when they attended. Interventions mostly targeted providers and their practice because there is greater capacity influence the acceptability and accessibility of services.

Effective interventions comprised reminder systems to recall patients for review or to prompt opportunistic completion of care processes; specific clinics with PHC, such as diabetes or PAP testing clinic; or appointment systems and outreach to ensure attendance for review. The specific practice strategies varied by domain of care: multidisciplinary teams and disease specific clinics for diabetes, call/recall and reminder systems for PAP testing, and changes in appointment systems and enhanced staff roles for episodic care. Many involved use of clinical information and practice systems to support timely follow up. This is consistent with current understanding of the importance of the practice environment for the delivery of best practice PHC. It also mirrors trends observed in the Australian policy context where efforts have focussed on organisational changes and re-structuring.

Strategies to support patients had a particular focus on providing education and information, enhancing access to PHC through development of culturally specific services in community settings frequented by priority groups, or providing outreach to engage hard to reach patients. Although targeting patients, these strategies usually were initiated in the PHC practice and involved changes in the delivery of services to encourage and enhance access for targeted patients.

Interventions were also concerned with workforce development strategies either singly or as part of multiple strategy interventions. This recognises the importance of a strong PHC workforce in delivery of best practice PHC through social and cultural competence and inter-professional collaboration. In relation to PAP testing and specific services such as screening for specific conditions, for example retinal screening, strategies involved extending the range of health care providers who provided care. Geographical strategies related to setting up new types of episodic care, for example walk-in clinics in the UK, involved major policy and services development initiatives. Smaller initiatives included outreach services, such as establishing a diabetes risk factor clinic in a large work environment or home visiting, that offer promise for harder to reach populations.

As is found in other areas of quality improvement, interventions comprising multiple strategies were more likely to be successful than those with a single strategy (70). Multiple strategies might include changes to practice systems to support patient care, workforce development, and patient support strategies such as scheduled appointments and proactive follow-up, addressing barriers on patient- and provider-sides. Strategies also involved multiple levels of the health care system usually in the form of funding policy at system level, and practice systems and support at practice level. Strategies were least reported at the PHC organisation level, reflecting the relative lack of development at this level of the PHC services. On the patient side, strategies usually targeted individual patients with some focus on communities. No successful strategies were found at family or society level, but these may be addressed elsewhere: for example

through family support services, or national programs such as those encouraging people with depression to seek help.

Overall, effective strategies addressed the factors identified as influencing access to best practice PHC (Figure 7). Patient support strategies targeted identified patient factors, workforce strategies addressed the gaps in technical skills, and organisational strategies broadly tackled issues identified in the literature. There were gaps in the literature in regard to interventions addressing insufficient cultural and social skills of providers as well as provider continuity, which was identified as important but addressed in only one un-evaluated study in the PAP testing literature (71). In additions, strategies that addressed financial issues focused on quality improvement through provider incentives, but the literature did not address strategies to improve service affordability for patients. No studies identified strategies to enhance family access to PHC.

Interventions that did not show any change in access to best practice care were single strategy interventions only, predominantly around patient support and geographical interventions (outreach). While patient support strategies seem to add value to multi-strategy interventions they do not show high effectiveness rates as stand-alone strategies for PAP testing interventions. All of the geographical interventions that were not effective in improving access were development of new services for episodic care.

There was limited focus on targeting vulnerable or hard to reach populations in intervention studies in episodic care. Intervention studies that addressed management of diabetes and PAP testing were more often tailored towards specific ethnic, Indigenous or socio-economically disadvantaged populations. Whether, and to what extent, the blanket approaches of episodic care interventions, reached disadvantaged vulnerable populations is not known. For example, national policy interventions to reduce waiting time in the UK where not evaluated for differential access outcomes.

Investigating three domains of care provided an opportunity to consider contrasting and potentially conflicting goals of the different domains. For example, while advanced access may seek to make episodic care more quickly and timely available through same day appointment systems, this may not be appropriate for providers of care to patients with chronic conditions such as diabetes who need to be able to schedule appointments ahead to ensure regular review and ensure continuity of care (64, 72). Practice and provider organisations face the challenge of improving access across the different domains of care and for a range of different patient and community groups. Solutions will vary, but will often include a generalist approach, which develops organisation and staff capacity to work across issues, with special arrangements for different domains and patient groups only where needed. The three domains of care studies also highlighted contrasting approaches for the three countries with the majority of papers were sourced: Australia, UK, and USA and suggests that the overall health system within countries impacts of issues relating to access to PHC. The focus in the USA on provision of services for under-insured patients reflects the importance of universal health care policies. Studies emerging from the UK reflected the presence of a free universal system with low rates of private health insurance; however studies addressed issues of waiting times and timely access to appointments, which reflects the issue of providing adequate services within a publicly funded system. In terms of issues of access to PHC, Australia's system of both public and private insurance resulted in interest in access to PHC across all three domains.

The primary focus of most interventions was general practice (primary medical care), sometimes in combination with other services or PHC professionals. This was not surprising, since general practice is often seen as the first point of contact for PHC, and the domains of care studied all have a strong general practice component. Inclusion of other services accessible through general practice or independently, will improve patient access to best practice PHC. Criteria for best practice PHC can be found for other areas such as early childhood services and dental screening services as well as other chronic conditions and screening tests.

4.3 COSTS OF STRATEGIES TO ADDRESS ACCESS TO BEST PRACTICE PHC

Although nine studies considered the costs and benefits of interventions, the quality of the data collected was low, none of the studies was set in the Australian context, and it was not possible to draw conclusions on the relative costs ro cost-effectiveness of interventions to enhance access to best practice PHC.

The study by Scott and colleagues (66) is important for two reasons. First, it illustrates how advanced econometrics techniques can be used to evaluate programs such as the PIP by separating the effects of one policy change, (eg financial incentives) from others introduced at the same time (eg IT infrastructure, support and education regarding clinical guidelines etc). Second, it shows that the PIP has had a positive effect on the provision of best practice care for diabetes and that Divisions of General Practice played an important role in lowering the administrative costs of participating in the PIP. Thus, in terms of diabetes care, the PIP can be said to have increased access to best practice diabetes care; as the probability of providing best practice diabetes care increased at a higher rate for the Indigenous population compared to the population overall, the policy appears to have also increased equity of access.

Overall, however, the information from this small sample of articles was not able to be used to draw any firm conclusions regarding the costs or cost-effectiveness of interventions, strategies or policies designed to enhance access to primary care. Further research (particularly evaluative research) should consider the benefits to practice of including a rigorous economic analysis as part of any comparative analysis. Furthermore, commissioned evaluations of policies will be enhanced in terms of both their rigor and policy relevance by the use of econometric analysis.

4.4 IMPLICATIONS FOR POLICIES AND STRATEGIES IN THE AUSTRALIAN CONTEXT

The results of this review indicate a number of areas in which there would be scope for enhancing access to best practice PHC in Australia. The review showed that the most effective interventions used a range of strategy types, often at various different levels of the system (Figure 7). The results suggest that changes to PHC to enhance access to best practice PHC work best when they build capacity to enhance access across a range of areas of care, target both patient- and provider-side issues, and link to policy initiatives and funding incentives. For example, improving the accessibility of diabetes education within general practices may need attention to workforce availability and skills. Payment systems and organisational development within practices and through development of provider organisations with capacity to harness additional resources to support care provision may also need attention. Finally, the focus should be on access for the population as a whole; research is needed to ensure that interventions are implemented in ways to ensure that different groups are able to access services in proportion to their need.

There were messages for development of PHC policy in this review:

Patient support Patient support strategies were a key part of many effective interventions. There is currently renewed interest in health literacy and its impact on people's ability to maintain their health and use services effectively. There may be scope for programs to build health literacy as a part of contact with health services, through schools or public education.

Developing practice organisations. This was a widely used and effective type of strategy and most frequently involved development of practice systems and resources to support PHC. For example practice systems provide opportunities to flag patients, who are due for review or screening, to do this opportunistically, or to implement active follow up of particular patients. Similar systems may be required for other health practitioners who work independently in private practice.

Development of integrated PHC services. Integrated PHC services as envisaged in current PHC reform proposals would be well placed to improve accessibility by developing strong links with

other services and encouraging or facilitating development of multidisciplinary teams. The risk is that concentrating scarce allied health resources in specific services may reduce access for patients who do not use that service. It will be important to ensure that integrated services are able to be accessed more readily by PHC practitioners; hub and spoke arrangements may ensure more equitable integration of care while retaining integrity of individual practitioners and practices. Integrated PHC services may need to be tailored to the needs of specific population groups, including patients with chronic and complex health care needs and priority groups including young people, indigenous people, and disadvantaged groups such as the homeless.

Patient linkage There was some evidence that linking patients to a consistent service provider was associated with better access to PHC. While most patients in Australia with a chronic condition receive care from a single provider, this is not underpinned by the clarity of role and responsibility that comes with formal patient registration. Voluntary registration as envisaged in proposed PHC reforms will provide an opportunity to test the benefits of this arrangement.

Some organisations have formal arrangements for allowing consumer feedback and input into planning. While we found no evidence concerning the effectiveness of this, it may help link services to their communities and assist them to remove any cultural or other barriers to access.

Primary health care organisation (PHCO) There was limited evidence of effective strategies from PHCOs. Currently only GPs are formally linked through Division of General Practice. Divisions have been largely effective in building links between practitioners and initiating engagement of other health practitioners in general practice. This is the level of health service organisation that is best able to ensure that populations have access to best practice PHC, both as a first point of contact and through a network of well connected referral services. If PHCOs are established in Australia, they will need to have a regional focus, authority and resources to engage a range of PHC practitioners, meaningful roles and responsibilities for all PHC practitioners, and capacity to ensure delivery of best practice PHC within their region.

Workforce The review highlighted the importance of social and cultural skills in health care providers, as well as technical skills in health care. While many services are aware of the need for cultural competence in dealing with indigenous or CALD communities, there is less understanding of the needs of other groups who may be disadvantaged in using health care, including unemployed people and people with low SES or health literacy levels.

Financial Although the EPC program makes the allied health components of best practice PHC more widely accessible than before, patients can still face significant gap payments. Better linkage of public and private PHC would enable public services to focus on those least able to access private services. Another way of reducing gap payments would be to explore alternatives to fee for service, particularly for predictable routine chronic disease care.

4.5 METHODOLOGICAL ISSUES

This narrative review was not limited to randomised control trials. Our description of access to 'best practice' PHC and interest in exploring evidence for impact of interventions to address access to PHC for populations in terms of their impact on use of services did not favour traditional randomised trial designs. Where the strategies used involved a national or regional change in delivery of services such as introduction of a national telephone triage system or population based recall system, there were limited opportunities to identify suitable comparison groups in evaluation. Consequently, many of the studies included involve group randomisation, quasi experimental, cohort or serial cross-sectional designs. However, many designs favoured studies with large numbers due to use of administrative data collections and registers for evaluation.

The literature was limited to developed countries with similar approaches to health care provision to Australia. However between countries differences in interest relating to access to PHC were observed. For example the USA literature was interested in achieving access to health care for underinsured patients due to lack of universal health insurance, whereas the UK

literature was much more focused on timely availability of care reflecting previous under provision of services.

There are ongoing issues about how to best measure access to PHC. We were interested in use of services and use of processes of care that were consistent with accepted best practice as outlined in guidelines. Consequently we limited the scope of the review to key domains of activity in PHC, and examples of condition that are relevant to a significant proportion of the community, have clear agreed approaches to care with accepted clinical processes, and are largely the domain of PHC and general practice. Consequently a number of studies that purported to address access to PHC were excluded as they did not report outcome measures that were consistent with our definition of access.

4.6 CONCLUSION

This review provides insights into effective strategies to improve access to best practice PHC in Australia. It suggests that multiple strategies targeting different levels of the health care system are best placed to ensure changes in access to best practice PHC. The impending implementation of major changes in the structure of PHC in Australia provides opportunities to better understand the factors that influence access to best practice PHC and implement effective strategies to enhance access to best practice PHC.

Currently, PHC in Australia is fragmented through major differences in structure and funding, and lack of comprehensive PHC services. Overall, no single body has responsibility for oversight of PHC or to ensure access to primary health care for different patient groups. There are some important areas where there is little direct responsibility for ensuring access, for example general practice, even though substantial government funding comes through Medicare. There are opportunities to address this through plans for a significant restructure of the PHC system. Inclusion of effective strategies identified as a part of this review may reduce some of the identified barriers to access to best practice PHC.

As PHC structural changes are implemented there is a need for a systematic approach that includes further research to evaluate the impact of these changes on access to PHC including for whom and in what circumstances are changes most effective. Ongoing health service research is also needed to elucidate factors on both provider- and patient-sides that influence access, to better understand the interactions between these, and to understand the levels within both the health system and community where there are best opportunities to intervene. The increasing availability of electronic data collections, including Medicare data itself, and population health surveys, and development of sophisticated data linkage facilities provide opportunities to further explore the factors that influence access to best practice PHC and to monitor the impact of policy strategies.

Ensuring that people have access to PHC will continue to be an important goal for the Australian health system and cause for concern in some quarters.

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